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ABSTRACT

This study compared the grade equivalents of students with learning disabilities in English composition classes using traditional lecture and word processing formats, to determine which format would best accommodate these students at San Antonio College (Texas). Students in the word processing class were instructed on the use of the computer system and were allowed use of the microcomputers in the English lab as part of their regular class and as an open writing lab. The study concluded that using a word processing format may not be an advantage over a traditional class in terms of academic success. The study recommends that counselors and faculty advisors continue to use students' preference as a guideline for placing them in various freshman composition formats, and consider the effect of word processing as a motivator in making recommendations to students with learning disabilities. Appendices provide data supporting the study. (Contains 22 references.) (JDD)

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A COMPARISON OF TEACHING METHODS IN FRESHMAN COMPOSITION CLASSES FOR LEARNING DISABLED STUDENTS AT SAN ANTONIO COLLEGE

by

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March, 1993

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Abstract

A COMPARISON OF TEACHING METHODS IN FRESHMAN COMPOSITION CLASSES FOR LEARNING DISABLED STUDENTS AT SAN ANTONIO COLLEGE

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Learning disabled students have been enrolling at an increasing rate in postsecondary education. Many students who experience developmental writing disorder have difficulty in writing-intensive classes. The purpose of this study was to compare the grade equivalents of learning disabled students in English composition classes using traditional lecture and word processing formats to determine which format would best accommodate these students in this required class.

The research question for this quasi-experimental study was--Do learning disabled students who take freshman composition using a word processing format achieve more academic success in English than those students taking traditional freshman composition classes? The procedures followed in this study

included calculating grade equivalent means for two samples of 25 learning disabled students, using a t-test of independent means to test for significance (at a .05 level), and applying a two-tailed test to define the region of rejection of the null hypothesis. The results of the statistical application did not provide a significant difference between the means and the null hypothesis was not rejected.

It was concluded that using a word processing format may not be an advantage over a traditional class in terms of academic success. It was recommended that further research be conducted to determine those factors which contribute to a higher level of achievement for learning disabled students in writing-intensive classes.

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Chapter 1

INTRODUCTION

In recent years, learning disabled (LD) students have enrolled at San Antonio College in increasing numbers to seek education and training despite their differences in learning style and the difficulties that are often encountered academically. These students were mainstreamed in classes and were challenged by a core curriculum that required freshman composition as part of the prerequisites for associate degrees. As technology has evolved there have been innovations made in our computerized society that allow for the use of word processing to teach composition. The opportunity for disabled students to use this technology provided an occasion to study the possible benefits that may be available.

Background and Significance

San Antonio College has been a public community college since 1925, with over 23,000 students enrolled in academic and vocational/technical postsecondary coursework each semester. The open door admission policy at San Antonio College has allowed students to begin freshman composition based on their college

entrance examination scores. Learning disabled students who experience a developmental writing disorder have often done well on these non-essay placement tests, but encounter difficulty on the assignments that have been writing-intensive.

The problem was that learning disabled students who experienced developmental writing disorder were registering in traditional freshman composition courses and were often experiencing difficulty. The English department has been interested in providing various formats of instruction to best assist the diverse student body at San Antonio College. Freshman composition has been offered in both traditional (lecture and writing) and word processing formats. The concern at San Antonio College (SAC) was which format would best assist learning disabled students to complete freshman composition classes and prepare them for future writing-intensive classes.

Purpose

The purpose of this study was to compare the grade equivalents of learning disabled students in traditional and word processing freshman composition classes to determine which teaching format would best

accommodate students in this required course. San Antonio College continues to be interested in assisting students through advising and proper course placement. This comparison was made to help counselors and English department advisors direct learning disabled students toward appropriate class formats. Authors such as MacArthur and Graham (1987) have made the same point in their studies of different composition methods with learning disabled children, by emphasizing that important implications of instruction should be used to assist students.

A comparison of the grade equivalents in the word processing and traditional formats (in freshman composition) for learning disabled students relates to an interest by several departments at SAC. By applying an inferential design to contrast the instructional formats, this study makes recommendations concerning future course placement.

Research Question

The research question for this study was--do learning disabled students who take freshman composition using a word processing format achieve more academic success in English than those students taking

traditional freshman composition classes?

Research Hypothesis

The research hypothesis was that learning disabled students will have a significantly higher grade equivalent mean in freshman composition when using word processors than traditional lecture and in-class writing.

Chapter 2

REVIEW OF THE LITERATURE

The number of learning disabled students entering postsecondary education since 1980 is increasing at a rapid rate (Bogart, Eidelman, & Kujawa, 1988; Gajar, 1989; Collins, 1989; Vogel, & Adelman, 1992). Yet, there are a limited number of authors who dominate the research on the writing composition skills of learning disabled students (MacArthur, & Graham, 1987; Newcomer, & Barenbaum, 1991; Vogel, & Adelman, 1992). There is a need for support services and modification by many learning disabled students in order to compete in the postsecondary classroom with non-LD students, but there has been some disagreement in the literature regarding the use of word processing by this special population.

One of the driving forces behind the larger number of learning disabled students entering college is Section 504 of the Rehabilitation Act of 1973. This piece of legislation provided the means by which discrimination against the disabled would be prohibited. Section 504 states that "no otherwise qualified handicapped individual in the United States...shall, solely by reason of...handicap, be

excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance" (Handicapped Persons' Rights, 1987, p. 1). Section 504 states that individuals with impaired sensory skills (learning disabled) must be provided with auxiliary aids, which would include tape recorders, taped textbooks, and word processors. The Rehabilitation Act of 1973 was re-confirmed and expanded in the passing of the Americans with Disabilities Act of 1990.

A number of authors have reflected on the need for modification and support services for learning disabled students. Although most research concentrated on elementary and secondary education, the literature also produced models on how to start support programs at the postsecondary level (Brinckerhoff, 1991), the need learning disabled college students have for special accommodations (Bogart, Eidelman, & Kujawa, 1988; Lazarus, 1989), the positive impact peer tutors have on the learning disabled (Ives, 1990), and the success LD college students experience when afforded support services (O'Hearn, 1990; Vogel, & Adelman, 1992). One

writer suggested special classes be conducted for learning disabled students so modifications could be easily made (Long, 1988).

The research available on the use of computers/ word processors (as a modification) by learning disabled students is somewhat limited, but additionally there are a number of mixed reports (Ives, 1990). Yau (1990) states there is improved quality and quantity of writing when learning disabled students use word processors, but that the research is "inconclusive" (p. 4). Several authors have argued that there is no significant difference in grades, skills, or completion rates of learning disabled students in writing classes where word processors are used (MacArthur, & Graham, 1987; Collins, 1989; Okolo, 1992; Vogel, & Adelman, 1992). Of particular interest was the study by MacArthur and Graham (1987) where there were no differences reported between papers handwritten or typed on a word processor by learning disabled students, but that dictated papers were of higher quality and greater length. To the contrary a few have stated that word processors used by learning disabled students in composition classes have had positive

effects and appear "extremely encouraging" (Outhred, 1989, p. 263), or when used become the equalizers for learning disabled students (Margolis, & Price, 1986). A number of authors propose that additional research is needed in the area of computer use by learning disabled students (i.e., Gajar, 1989; Ives, 1990; Vogel, & Adelman, 1990). Despite the inconsistent reports, many agree that computer access should be available to learning disabled students in postsecondary labs and instructional environments (O'Hearn, 1990; Brinckerhoff, 1991; Okolo, 1992).

Many promote the use of word processors for learning disabled students because it serves as a continued impetus to write. MacArthur and Shneiderman (1986) found that students who experience a developmental writing disorder are motivated by printing a neat copy of their composition. Collins (1989) cited a positive attitude toward writing was gained by learning disabled students using word processors, and those who had spelling difficulty showed more confidence. Motivation is identified as a need of learning disabled students in composition classes by several authors (MacArthur, & Graham, 1987;

Schmidt, Deshler, Schumaker, & Alley, 1988; Newcomer, & Barenbaum, 1991).

In summary, learning disabled students are enrolling in college in larger numbers. Legislation has provided the means by which admissions, support services, and auxiliary aids can be allowed for this special population. Most learning disabled students benefit from support services and modifications. There are conflicting reports on the benefits of word processors used in writing classes, but it appears that computer use is a motivator for learning disabled students.

Chapter 3

METHODOLOGY AND PROCEDURES

A quasi-experimental research methodology was selected to test the cause-and-effect relationship of the teaching formats (in freshman composition) to learning disabled students. It appears that the process of collecting data, statistically analyzing the information, reporting the results, and describing the findings is appropriate for the methodology selected.

Data Collection

The method of collecting data involved the compilation of statistical records (grades) for analysis. The San Antonio College mainframe computer was used to collect data through the Student Information System software program which designated the learning disabled students enrolled and specified the class sections where different teaching formats were utilized. Learning disabled students were identified through the Disabled Student Services office and selected from English 1301 and 1302 classes offered in the Fall 1991, Spring 1992, and Fall 1992 semesters.

Sample

The students chosen for this research attended a

large community college located in South Texas. The sample used in this study consisted of 50 subjects and included 29 females and 21 males. All students had been identified as learning disabled according to diagnosis defined under federal guidelines; that is, the standard scores on achievement tests were one or more standard deviations below the standard score on an intelligence test. These students were all tested and diagnosed through the state rehabilitation commission or the Disabled Student Services unit at San Antonio College. All subjects scored within the normal range of intelligence as measured on the Wechler Adult Intelligence Scale-Revised (Wechler, 1987).

All of the students in the word processing class were instructed on the use of the computer system as part of the freshman composition course. These students were allowed use of the microcomputers in the English lab as part of their regular class and as an open writing lab. The courses met for 48 hours of classroom contact per semester.

Instrument

Through investigating the relationship between the treatment (teaching format) and dependent variable

(grade equivalents), grading was utilized as an indicator of the progress the students were making on themes/essays/in-class papers. Tenured professors with more than 10 years experience were used in all classes to grade assignments and post a final grade for each student (used as the instrumentation for this study).

Experimental and Control Group Treatments

A two group research design was used in the treatment of data as table 1 demonstrates. In this research design, A was the experimental group using word processing (X); B was the control group using a traditional (Y) format; and T was the dependent variable (grade equivalents). The word processing format was used as the independent variable in this study.

Table 1

Research Design

Learning Disabled Groups	Treatment	Posttest
A (N=25)	X	T
B (N=25)	Y	T

Scoring

Grade equivalents (the dependent variable) were utilized in the statistical analysis based on a four-point grade system (A=4, B=3, C=2, D=1, F=0). These grade equivalents were determined by assigning points to each letter grade and then calculating the mean for each group of 25 students.

Data Analysis

This study was planned as ex post facto research in order to assure that the sample was adequate, to complete the statistical analysis within a timeframe, and to eliminate the expectations that students would have if a study was being conducted during a freshman composition course.

Null Hypothesis

The null hypothesis for this study was that there will be no significant difference between the grade equivalent means in the word processing and traditional instructional formats for learning disabled students taking freshman composition.

Alternate Hypothesis

The alternate hypothesis was that there will be a significant difference between the grade equivalent

means in word processing and traditional instruction for learning disabled students taking freshman composition.

Level of Significance

A decision was made to only take moderate precautions against a Type I error, and a .05 level of significance was used.

Region of Rejection

Because of the conflicting reports on the use of word processors with learning disabled students in the literature, a two-tailed test to define the region of rejection of the null hypothesis was applied.

Statistical Test

A t-test of independent means was used to analyze the data in this study.

Definition of Terms

A learning disability was defined in this study as a writing disorder experienced when a student has average or above average intelligence, when s/he scores one standard deviation or more below his/her intellectual level on a standardized achievement test in written language, and the difference was not attributable to hearing or visual impairment, physical

disability, or environmental/cultural/economic disadvantage. Freshman composition was defined as a writing-intensive, college-level English class requiring mastery of themes, essays, and research papers as the basis for course completion.

Limitations

The results of this study cannot be generalized beyond the institution or the special population of learning disabled students used in this study without further study. There was a lack of control of presentation methodology and personality of the instructors in these classes.

Assumptions

It was anticipated that the two groups would be selected from a normal distribution of learning disabled students at San Antonio College. Due to the common textbook, study guide, course outline, and objectives in these courses, it was assumed that grades would be valid.

Chapter 4

RESULTS

The first consideration in conducting a statistical analysis was to establish the grade equivalents. This was completed by posting grades from computer generated records, assigning the proper number of points to each grade, and calculating a grade equivalent mean (a copy of the breakdown of individual grades is listed in appendix A). Table 2 shows the frequency distribution for both groups, where the word processing format produced a grade equivalent mean of 2.08 and the traditional format produced a grade equivalent mean of 2.04. Note that table 2 uses

Table 2

Computation of Frequency Distribution

Word Processing				Traditional		
Grade	f	fX	*	Grade	f	fX
A	4	16	*	A	4	16
B	6	18	*	B	4	12
C	7	14	*	C	11	22
D	4	4	*	D	1	1
F	4	0	*	F	4	0
	N= 25	EX= 52			N= 25	EX= 51
	$\bar{X}$= 52/25= 2.08				$\bar{X}$= 51/25= 2.04	

the following symbols: N= number of cases; $\bar{X}$= mean; f= frequency; X= value of grades in points; E= sum of.

Using GB-STAT software, the statistical results were calculated, and table 3 shows the findings.

Table 3

Statistical Results

Statistical Test	**t-test**
Degrees of Freedom	**48**
Level of Significance	**† p < .05**
Critical Value	**2.012**
Calculated Value	**.1077**

A copy of the GB-STAT computerized statistical results printout is located in appendix B. Figure 1 demonstrates the comparison of the two samples through simple bar graphs generated on GB-STAT (Friedman, 1990).

The null hypothesis was not rejected and there was no significant difference statistically identified

between the word processing format and the traditional format for learning disabled students in freshman composition.

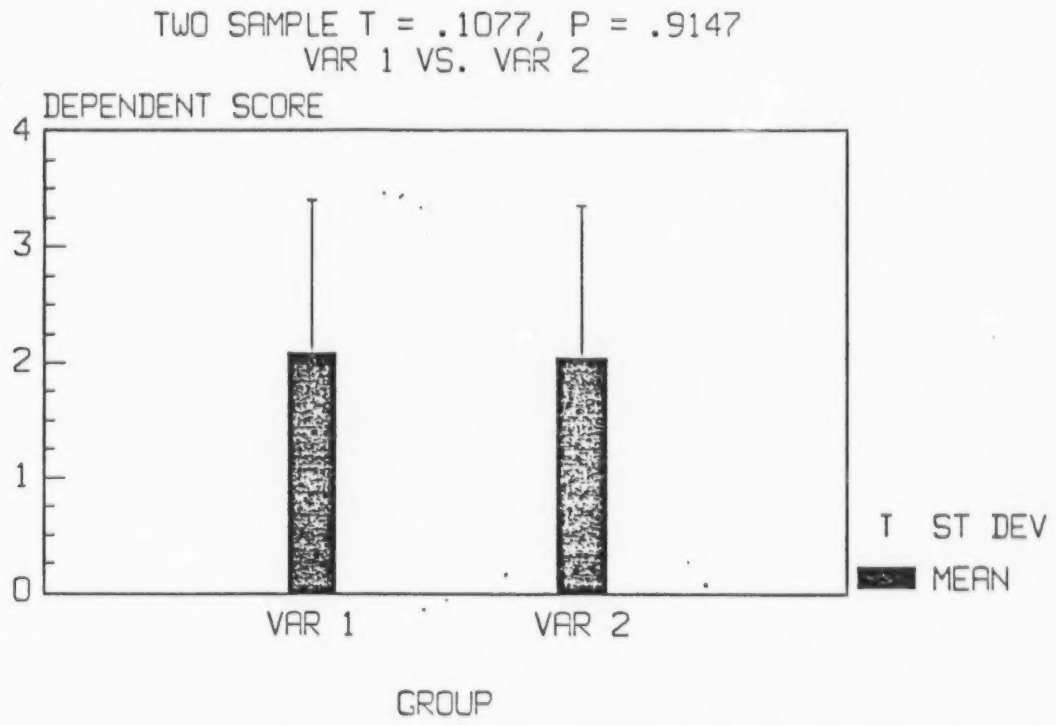

Figure 1. A comparison of the two samples where Var 1 is the word processing group and Var 2 is the traditional group.

Chapter 5

DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Discussion

The results of this study did not support the contention that a word processing format in freshman composition would best accommodate learning disabled students in obtaining more academic success than in a traditional teaching format. The findings of this study suggest that the use of word processing in a freshman writing class, when compared to the traditional lecture and in-class writing format, will provide similar academic achievement (in terms of grades) for learning disabled students. Both groups recorded overall passing grade equivalents which promotes the assertion by many in the literature that learning disabled students can achieve success in postsecondary settings by adapting their learning skills. In this study where differences were minimal, it can be stated that since many learning disabled students passed the word processing class, that the course offers some promise for those who have a writing disability and are drawn to this specific format.

The outcome of this research reinforces comments made by a few authors noted in the literature regarding the lack of significant difference in grades where word processors are used. MacArthur and Graham (1987) and others (i.e., Collins, 1989; Okolo, 1992) have argued that word processing in writing classes does not singularly distinguish it as a superior teaching format.

Conclusions

The word processing freshman composition class may not be preferred for all learning disabled students, and counselors/advisors should use a wide range of factors to determine which format is best for each individual student at San Antonio College. Computer use is one of many modifications that can be made for learning disabled students, and some students may be able to adapt their learning skills without the use of word processing. There may have been some students in the control group who learned to adapt their skills in secondary school where they could now manage a college level curriculum.

It should be recognized that this study involved a relatively small sample of learning disabled students

and that there are restrictions on how the data might be used for conclusions since the null hypothesis was not rejected.

Implications

This study adds to the increasing body of literature that has tested the effects of word processing on learning disabled students. In analyzing the data, there was an indication that since the computerized format produced many overall passing grades, word processing may be a desirable addition to the short list of possible modifications. Word processing may be a strong option for those who experience poor handwriting and a developmental writing disorder. In this sense, the study suggests that word processing can be a method of motivating some learning disabled students, particularly those who are attracted to this process, to increase their attempts at writing.

The results also hint that there is a persistence in the learning disabled control group to endure the lecture, in-class writing, and mainstream techniques of a traditional freshman composition class. The way these students have adapted and persisted may be worth further study.

Recommendations

Further research should be conducted to evaluate the effects of using word processors in a longitudinal study. Replications of this study should also include an evaluation (pretest/posttest) of student's writing samples to get a more holistic perspective of improvement. San Antonio College should continue an effort to determine what factors should be used to counsel or advise learning disabled students entering freshman composition and writing-intensive courses when different teaching formats are available. Further research also needs to carefully document how students vary in their use of word processing.

Based on this study, it is recommended that counselors and faculty advisors continue to use students' preference as a guideline for placing them in different freshman composition formats. The effects of word processing as a motivator should be considered in coursework recommendations for learning disabled students.

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APPENDICES

Appendix A
Breakdown of Individual Grades

Breakdown of Individual Grades

Word Processing	Traditional
F-0	D-1
B-3	A-4
F-0	C-2
B-3	C-2
D-1	A-4
C-2	B-3
A-4	C-2
F-0	F-0
C-2	C-2
A-4	B-3
B-3	F-0
D-1	B-3
F-0	C-2
D-1	A-4
A-4	C-2
B-3	F-0
C-2	A-4
B-3	C-2
C-2	C-2
B-3	C-2
C-2	B-3
D-1	F-0
C-2	C-2
C-2	F-0
A-4	C-2
75 /$\overline{156}$ = 2.08	75 /$\overline{153}$ = 2.04

Appendix B

GB-STAT Computerized Statistical Results

COMPARISON OF THE WORD PROCESSING AND TRADITIONAL TEACHING FORMATS FOR LD STUDENTS IN FRESHMAN COMPOSITION

2-SAMPLE T-TEST

GROUP:	VAR 1	VAR 2
SIZE:	25	25
MEAN:	2.08	2.04
SD:	1.320354	1.306395

F-RATIO (VAR):	1.021484
DF:	24 , 24
2-TAIL PROB:	.9592
T-VALUE:	.107676
DF:	48
2-TAIL PROB:	.9147
OMEGA SQUARED:	-.020167
ETA SQUARED:	.000241